**NATURAL RESOURCES CONSERVATION SERVICE (NRCS)**

OH-ENG-234a
03/00

COMPOSTING DESIGN WORKSHEET
FOR WINDROWS

| Landowner: | | County: | |
|---|---|---|---|
| Designer: | Date: | Checked: | Date: |

1. Calculate primary & secondary composting cycle times as a function of the design weight (see tables 1-3):

Primary cycle time ($T_1$) = 5.0 x ( _____ ) =_____ Days
Design Weight ($W_1$, largest animal anticipated) (10 day min)

Secondary cycle time ($T_2$) = 1/3 x _____ = _____ Days
(Primary cycle time ) (10 day min)

1. Calculate Primary, Secondary & Storage Volumes (or use Tables 1 through 3):

Primary Volume = 0.2 x _____ x _____=_____cu ft
lbs. Loss / Day (ADL) Primary Cycle Time ($T_1$)

Secondary Volume = 0.2 x _____ x _____ =_____cu ft
lbs. Loss / Day (ADL) Secondary Cycle Time ($T_2$)

Storage Volume = 0.2 x _____ x 30 days ($T_3$) =_____cu ft
lbs. Loss / Day (ADL)

Alternate: (use with large animals), $W_1$ = weight of largest animal

Primary Volume = 0.2 x $W_1$ (lbs.) x Integer (ADL * $T_1$/ $W_1$) =_____cu ft

Secondary Volume = 0.2 x $W_1$ (lbs.) x Integer (ADL * $T_2$/ $W_1$) =_____cu ft

Storage Volume = 0.2 x $W_1$ (lbs.) x Integer (ADL * $T_3$/ $W_1$) =_____cu ft

2. Indicate the windrow height and resulting windrow area used.

Assume a windrow height of 7 ft. and continue. Windrow Height =_____ ft
Windrow Section area and base width assume 1 ft. top width and 1:1 side slopes

| Windrow Height (ft) | Windrow Section Area (sq. ft.) | Windrow Base Width (ft) | Pad Width (ft) |
|---|---|---|---|
| 5 | 30 | 11 | 52 |
| 6 | 42 | 13 | 56 |
| 7 | 56 | 15 | 60 |

3. Calculate the length of the Primary, Secondary and Storage windrows. **The Design Windrow Length is longer of the primary windrow length or sum of the secondary and storage windrow lengths. Then calculate the pad length.

Primary Windrow Length = ( _____ )/( _____ ) = _____ ft
(Primary Volume / Primary Windrow Area / nearest ft.)

If the composting windrow length is less than twice the windrow height, reduce the height and go back to step 2. This indicates the composting configuration will be a compost pile versus a windrow.

Secondary Windrow Length = ( _____ ) / ( _____ ) = _____ ft
(Secondary Volume / Primary Windrow Area / nearest ft.)

Storage Windrow Length = ( _____ ) / ( _____ ) = _____ ft
(Storage Volume / Primary Windrow Area / nearest ft.)

Pad Length = **Design Windrow Length + 10 ft. = _____ ft (nearest ft.)

4. Calculate Composting Pad Area

Pad width = 10 ft + primary windrow base + 10 ft. + secondary windrow base + 10 ft (See Table in step 2)

Pad width = 10 ft + _____ + 10 ft. + _____ + 10 ft =_____ ft

Compost Pad Area = _____ (Pad Length) x _____ (Pad Width) = _____ sq. ft.

5. Calculate annual sawdust requirements. (This assumes no reintroduction of finished compost to the primary windrow, however it is recommended that up to 50% of fresh sawdust requirements be met with finished compost.)

Cubic Yards Sawdust =_____ (lb loss / yr.) x 0.0069 = _____cu. yd. / yr.